



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
-----------------	-------------	----------------------	---------------------	------------------

10/773,287

02/09/2004

Arto Palin

27592-00837

8738

30678

7590

03/23/2009

CONNOLLY BOVE LODGE & HUTZ LLP
1875 EYE STREET, N.W.
SUITE 1100
WASHINGTON, DC 20006

EXAMINER

HUANG, WEN WU

ART UNIT

PAPER NUMBER

2618

MAIL DATE

DELIVERY MODE

03/23/2009

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

DETAILED ACTION

Claims 1-25, 29 and 37 are cancelled.

Claims 26-28, 30-36 and 38-55 are pending.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

1. Claims 26, 27, 31-35, 39-43, 45 and 50-55 are rejected under 35 U.S.C. 103(a) as being unpatentable over Jang et al. (US. Pub No. 2002/01679931 A1; hereinafter "Jang") in view of Adachi (US. 6,256,334 B1).

Regarding **claim 26**, Jang teaches a method of transmitting information by a wireless communication device (see Jang, fig. 6, Bluetooth device, para. [0029]), the method comprising:

monitoring an energy level (see Jang, fig. 6, measurement unit 61; para. [0031] and fig. 7, S710, para. [0034]) of a monitored frequency band of a selected frequency hopping pattern (see Jang, para. [0033]); and

transmitting data on a transmit frequency band of said selected frequency hopping pattern (see Jang, fig. 7, S730, S740 and S750; para. [0036]) if said energy level indicates a particular condition of said monitored frequency band (see Jang, fig. 7,

Art Unit: 2618

S720, para. [0035]), wherein a timing of further data transmission is determined based on a time at which the particular condition is met (see Jang, para. [0032-0033], 250 micro-second standby time).

Jang is silent to teaching that wherein a timing of further data transmission according the selected frequency hopping pattern is determined based on a time at which the particular condition is met. However, the claimed limitation is well known in the art as evidenced by Adachi.

In the same field of endeavor, Adachi teaches a method wherein a timing of further data transmission (see Adachi, col. 17, lines 57-60) according the selected frequency hopping pattern (see Adachi, col. 17, lines 48-55) is determined based on a time at which the particular condition is met (see Adachi, col. 17, lines 48-52, based on the received response signal and the timer value).

Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention was made to combine the teaching of Jang with the teaching of Adachi in order to avoid transmission collision and improve communication throughput (see Adachi, col. 3, lines 58-67).

Regarding **claim 27**, the combination of Jang and Adachi teaches the method of Claim 26, wherein said transmit frequency band is the same as said monitored frequency band (see Jang, fig. 9B and para. [0033]), and wherein said particular condition comprises a condition that a pre- existing transmission in the monitored frequency band has been completed (see Jang, fig. 7, S720; fig. 9B, "listen f.9" of

Art Unit: 2618

Piconet 2 detecting that "transmission f.9" of Piconet 1 (i.e. pre-existing transmission) has been completed).

Regarding **claim 53**, the combination of Jang and Adachi teaches the method of Claim 27, wherein transmitting data in the transmit frequency band is to commence following a predetermined time delay following completion of said pre-existing transmission (see Jang, para. [0032-0033], 250 micro-second standby time; see Adachi, col. 17, lines 57-60).

Regarding **claim 31**, the combination of Jang and Adachi teaches the method of Claim 26, further comprising:

selecting said selected frequency hopping pattern (see Adachi, fig. 6, S3; col. 17, lines 53-56) based on a determination of use of one or more frequency hopping patterns within a communication range of the wireless communication device (see Adachi, fig. 6, S1 and S2; col. 17, lines 49-53; neighboring networks are within the communication range because there are overlapping of communication area).

Regarding **claim 32**, the combination of Jang and Adachi teaches the method of Claim 31, wherein said determination is based on at least one process selected from the group consisting of: detecting one or more frequency hopping patterns; and receiving one or more notifications of frequency hopping patterns being used (see

Art Unit: 2618

Adachi, fig. 6, S1 and S2; col. 17, lines 49-53).

Regarding **claim 33**, the combination of Jang and Adachi teaches the method of Claim 31, wherein said selecting said selected frequency hopping pattern comprises selecting a frequency hopping pattern that is being used within the communication range of the wireless communication device (see Adachi, fig. 6, S3; col. 17, lines 53-57).

Regarding **claim 34**, Jang teaches a wireless transmitter apparatus (see Jang, fig. 6, Bluetooth device, para. [0029]) comprising:

means for monitoring an energy level (see Jang, fig. 6, measurement unit 61; para. [0031] and fig. 7, S710, para. [0034]) of a monitored frequency band of a selected frequency hopping pattern (see Jang, para. [0033]); and

means for transmitting data on a transmit frequency band of said selected frequency hopping pattern (see Jang, fig. 7, S730, S740 and S750; para. [0036]) if said energy level indicates a particular condition of said monitored frequency band (see Jang, fig. 7, S720, para. [0035]), wherein a timing of further data transmission is determined based on a time at which the particular condition is met (see Jang, para. [0032-0033], 250 micro-second standby time).

Jang is silent to teaching that wherein a timing of further data transmission according the selected frequency hopping pattern is determined based on a time at

Art Unit: 2618

which the particular condition is met. However, the claimed limitation is well known in the art as evidenced by Adachi.

In the same field of endeavor, Adachi teaches a method wherein a timing of further data transmission (see Adachi, col. 17, lines 57-60) according the selected frequency hopping pattern (see Adachi, col. 17, lines 48-55) is determined based on a time at which the particular condition is met (see Adachi, col. 17, lines 48-52, based on the received response signal and the timer value).

Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention was made to combine the teaching of Jang with the teaching of Adachi in order to avoid transmission collision and improve communication throughput (see Adachi, col. 3, lines 58-67).

Regarding **claims 35, 54 and 39-41**, the dependent claims are interpreted and rejected for the same reasons set forth above in claims 27, 53 and 31-33, respectively.

Regarding **claim 42**, Jang teaches a wireless communication device comprising:
a sensing module to monitor an energy level (see Jang, fig. 6, measurement unit 61; para. [0031] and fig. 7, S710, para. [0034]) of a monitored frequency band of a selected frequency hopping pattern;

a timing controller (see Jang, fig. 6, judgment unit 62 and Bluetooth wireless 65) coupled to the sensing module (see Jang, fig. 6, measurement unit 61) to provide an indication of said monitored frequency band to said sensing module (see Jang, fig. 7,

Art Unit: 2618

S700, para. [0033]), and to determine if the one or more detection signals indicate that a particular condition has been satisfied by the monitored frequency band (see Jang, fig. 7, S720; para. [0035]); and

a transmit module coupled to the timing controller to receive an indication to transmit data in a transmit frequency band of the selected frequency hopping pattern (see Jang, fig. 7, S730, S740 and S750; para. [0036]), wherein said indication is to be generated by the timing controller subsequent (see Jang, para. [0032-0033], 250 micro-second standby time) to the timing controller determining the particular condition has been satisfied by the monitored frequency band (see Jang, fig. 7, S720, para. [0035]).

Jang is silent to teaching that wherein a timing of further data transmission according the selected frequency hopping pattern is determined based on a time at which the particular condition is satisfied. However, the claimed limitation is well known in the art as evidenced by Adachi.

In the same field of endeavor, Adachi teaches a method wherein a timing of further data transmission (see Adachi, col. 17, lines 57-60) according the selected frequency hopping pattern (see Adachi, col. 17, lines 48-55) is determined based on a time at which the particular condition is satisfied (see Adachi, col. 17, lines 48-52, based on the received response signal and the timer value).

Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention was made to combine the teaching of Jang with the teaching of Adachi in order to avoid transmission collision and improve communication throughput (see Adachi, col. 3, lines 58-67).

Regarding **claims 43 and 55**, the dependent claims are interpreted and rejected for the same reasons set forth above in claims 27 and 53, respectively.

Regarding **claim 45**, the combination of Jang and Adachi teaches the device of Claim 42, wherein said transmit module is further to continue to transmit further data according to said selected frequency hopping pattern according to said timing (see Jang, para. [0032-0033], 250 micro-second standby time; see Adachi, col. 17, lines 57-60).

Regarding **claim 50**, the combination of Jang and Adachi teaches the device of Claim 42, wherein said sensing module is further to sense the use of one or more frequency hopping patterns within a communication range of the device (see Adachi, fig. 6, S1 and S2; col. 17, lines 49-53; neighboring networks are within the communication range because there are overlapping of communication area), and wherein the timing controller is to select said selected frequency hopping pattern based at least in part on one or more results obtained by the sensing module (see Adachi, fig. 6, S3; col. 17, lines 53-56).

Regarding **claim 51**, the combination of Jang and Adachi teaches the device of Claim 42, comprising:

Art Unit: 2618

a receive module to receive one or more notifications about use of one or more frequency hopping patterns within a communication range of said device (see Adachi, fig. 6, S1 and S2; col. 17, lines 49-53);

wherein the timing controller is to select said selected frequency hopping pattern based at least in part on said one or more notifications (see Adachi, fig. 6, S3; col. 17, lines 53-56).

Regarding **claim 52**, the combination of Jang and Adachi teaches the device of Claim 42, wherein said selected frequency hopping pattern corresponds to a frequency hopping pattern in use within a communication range of said device (see Adachi, fig. 6, S1-3; col. 17, lines 49-57; neighboring networks are within the communication range because there are overlapping of communication area).

2. Claims 28, 36 and 44 are rejected under 35 U.S.C. 103(a) as being unpatentable over Jang and Adachi as applied to claims 26, 34 and 42 above, and further in view of Schmidl et al. (US. Pub No. 2003/0206561 A1; hereinafter "Schmidl")

Regarding **claim 28**, the combination of Jang and Adachi teaches the method of Claim 26, wherein said particular condition comprises a condition that there is no pre-existing transmission in the monitored frequency band (see Jang, fig. 7, S720, para. [0035]).

Art Unit: 2618

The combination of Jang and Adachi is silent to teaching that wherein said transmit frequency band is different from said monitored frequency band. However, the claimed limitation is well known in the art as evidenced by Schmidl.

In the same field of endeavor, Schmidl teaches a method wherein said transmit frequency band (see Schmidl, fig. 4, para. [0060], channel M) is different from said monitored frequency band (see Schmidl, fig. 4, para. [0060], channel N).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to combine the teaching of Jang and Adachi with the teaching of Schmidl in order to advantageously select a frequency band whose communication quality is suitable for communication at a desire rate (see Schmidl, para. [0005]).

Regarding **claims 36 and 44**, the dependent claims are interpreted and rejected for the same reasons set forth above in claim 28.

3. Claims 30, 38 and 46 are rejected under 35 U.S.C. 103(a) as being unpatentable over Jang and Adachi as applied to claims 26, 34 and 42 above, and further in view of Ryan (US. 6,333,937 B1).

Regarding **claim 30**, the combination of Jang and Adachi teaches the method of Claim 26.

Art Unit: 2618

The combination of Jang and Adachi is silent to teaching that wherein said data comprises one or more orthogonal frequency-division multiplexing (OFDM) symbols. However, the claimed limitation is well known in the art as evidenced by Ryan.

In the same field of endeavor, Ryan teaches a method wherein said data comprises one or more orthogonal frequency-division multiplexing (OFDM) symbols (see Ryan, col. 3, lines 35-41).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to combine the teaching of Jang and Adachi with the teaching of Ryan in order to improve the performance of the wireless communication (see Ryan, col. 3, lines 43-54).

Regarding **claims 38 and 46**, the dependent claims are interpreted and rejected for the same reasons set forth above in claim 30.

4. Claims 47 and 48 are rejected under 35 U.S.C. 103(a) as being unpatentable over Jang and Adachi as applied to claim 42 above, and further in view of Sakoda et al. (US. 7,110,472 B2; hereinafter "Sakoda")

Regarding **claim 47**, the combination of Jang and Adachi teaches the device of Claim 42.

The combination of Jang and Adachi is silent to teaching that wherein said transmit module comprises:

a transmit buffer coupled to receive said indication from the timing controller; and a transform device coupled to an output of said transmit buffer to process data from the output of the transmit buffer to provide an output signal. However, the claimed limitation is well known in the art as evidenced by Sakoda.

In the same field of endeavor, Sakoda teaches a device wherein said transmit module (see Sakoda, fig. 10) comprises:

a transmit buffer (see Sakoda, fig. 10, buffer 81) coupled to receive said indication from the timing controller (see Sakoda, fig. 10, control section 82); and a transform device coupled to an output of said transmit buffer to process data from the output of the transmit buffer to provide an output signal (see Sakoda, fig. 10, IFFT 85; col. 14, lines 15-20 and 35-40).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to combine the teaching of Jang and Adachi with the teaching of Sakoda in order to provide a transmission method capable of performing desired communication without affecting other and/or neighboring communications (see Sakoda, col. 7, lines 3-8).

Regarding **claim 48**, the combination of Jang, Adachi and Sakoda teaches the device of Claim 47, wherein said transform device comprises an inverse fast Fourier transform (IFFT) device (see Sakoda, fig. 10, IFFT 85).

Art Unit: 2618

5. Claim 49 is rejected under 35 U.S.C. 103(a) as being unpatentable over Jang and Adachi as applied to claim 42 above, and further in view of Mahany (US. Pub No. 2003/0078006 A1).

Regarding **claim 49**, the combination of Jang and Adachi teaches the device of Claim 42.

The combination of Jang and Adachi is silent to teaching that wherein said one or more detection signals comprise one or more signals indicating one or more transitions in an energy level of the monitored frequency band. However, the claimed limitation is well known in the art as evidenced by Mahany.

In the same field of endeavor, Mahany teaches a device wherein said one or more detection signals comprise one or more signals indicating one or more transitions in an energy level of the monitored frequency band (see Mahany, para. [0248]).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to combine the teaching of Jang and Adachi with the teaching of Mahany in order to improve performance and communication throughput under both light and heavy communication loading (see Mahany, para. [0019]).

Response to Arguments

Applicant's arguments with respect to claims 26, 34 and 42 have been considered but are moot in view of the new ground(s) of rejection.

Art Unit: 2618

Regarding claims 28, 36 and 44, in response to applicant's arguments against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986).

Here, the Examiner submits the combination of Jang and Adachi is silent to teaching that wherein said transmit frequency band is different from said monitored frequency band. However, the claimed limitation is well known in the art as evidenced by Schmidl.

In the same field of endeavor, Schmidl teaches a method wherein said transmit frequency band (see Schmidl, fig. 4, para. [0060], channel M) is different from said monitored frequency band (see Schmidl, fig. 4, para. [0060], channel N). More specifically, Schmidl states that the transmitter is transmitting on a channel M (i.e. transmit frequency band M) and the adjacent channel power is measure on channel N (i.e. monitored frequency band N)

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

Art Unit: 2618

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to WEN W. HUANG whose telephone number is (571)272-7852. The examiner can normally be reached on 10am - 6pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Matthew D. Anderson can be reached on (571) 272-4177. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 2618

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/W. W. H./
Examiner, Art Unit 2618

/Matthew D. Anderson/
Supervisory Patent Examiner, Art Unit 2618